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OPERATIONAL ACTIVITIES FOR DEVELOPMENT

Comprehensive policy review of operational activities of the United Nations system

Note by the Secretary-General

Addendum

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ABBREVIATIONS

DESD	Department of Economic and Social Development of the United Naitons Secretariat
FAO	Food and Agriculture Organization of the United Nations
IFAD	International Fund for Agricultural Development
ILO	International Labour Organisation
OECD	Organisation for Economic Cooperation and Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNFSTD	United Nations Fund for Science and Technology for Development
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization

I. SCIENCE AND TECHNOLOGY: INTRODUCTION AND SUMMARY

1. In paragraph 26 of its resolution 46/219, the General Assembly requested the inclusion in this report of an assessment of and appropriate recommendations on the contribution of the operational activities of the United Nations system to the enhancement of national capacities of developing countries in the field of science and technology. This section responds to this request.

2. The concept of "capacity for science and technology", as conceived and defined in United Nations discussions over the last decade, is a complex and dynamic capability to perform a series of tasks that are listed in table 1. These different tasks demand many varied skills, some managerial, many of them highly specialized and technical, and they need to be brought together, as a functioning system, by each individual developing country as it attempts to harness the power of science and technology to the pursuit of its developmental objectives. While most of the efforts of any country will be national efforts, there are important contributions being made by many donor agencies and not least by the organizations and entities that constitute the United Nations system.

Table 1. Functions of United Nations organizations in the field of science and technology

(A) Financing functions

- Funding of projects;
- Funding of programmes;
- Funding of training, including management training;

(B) Capacity-building functions

- Funding of institution building;
- Policy analysis;
- Provision of technical experts;
- Provision of management, administrative or legal expertise or support;

(C) Global policy coordination

- Provision of a forum for exchange of views on policy matters;
- Provision of a forum for negotiations with donors.

3. The volume of funds flowing to the United Nations for these specific activities cannot be determined since the relevant expenditures are not disaggregated in any systematic fashion. What is understood is that they undoubtedly constitute a large fraction of the annual expenditures on operational activities by the United Nations.

4. United Nations agencies carry out three broad classes of functions when they offer support to developing countries: financing functions, capacity-building functions, and global policy coordination. Some agencies perform all types of function, others have more limited mandates; some work in specifically defined sectors while others cover a considerable array of fields of activity.

5. Table 2 sets out, in somewhat more detail, the major functions of United Nations organizations.

6. Some of the principal lessons learned by United Nations agencies in their collaboration with developing countries include:

(a) In the field of technology transfer:

(i) Even when technologies are transferred from abroad, it is increasingly evident that domestic scientific and technological capacity is one of the most important factors determining the success or failure of effective transfer;

(ii) The essential technological capacity would include the capability of a recipient enterprise to define its technological needs and to select technology and negotiate with suppliers, the ability to operate imported technology efficiently, the capacity to undertake routine repairs and maintenance, the ability to analyse the production facilities and to undertake modifications and additions to equipment to increase capacity and reduce costs, the ability to plan, design and execute expansions of capacity, and, finally, the ability to generate a series of technological innovations to improve and/or expand production;

(b) In the field of institutional strengthening:

(i) An essential prerequisite for an effective United Nations contribution to local capacity-building and institutional strengthening is the existence of a carefully considered national policy for science and technology. Where such a policy does not exist, the UNDP country programming process and the UNESCO major science policy missions can provide useful frameworks within which the United Nations can optimize its contribution;

Table 2. Functions of United Nations bodies related to functions of a national science and technology system

Function	Financing	Technical assistance policy advice	Policy advice
Science and technology policy formulation	UNDP, inc. UNFSTD	DESD, WIPO, UNESCO, FAO	UNCTAD, DESD, WIPO, regional commissions, governing bodies of agencies
Forecasting the direction of technical change	UNFSTD	DESD, UNIDO	Regional commissions
Financing activities	UNDP	DESD, UNIDO	IFAD, UNESCO, WHO, FAO, UNIDO
Execution of research programmes	UNDP, IFAD, UNFPA	WHO, UNESCO, UNIDO	IFAD, UNESCO, WHO, FAO, UNIDO
Linkage of research and development output to practical use	UNICEF, IFAD, WFP, UNFPA, UNDP	IFAD, UNIDO, FAO, WHO	DESD, IFAD, UNICEF, UNFPA, UNESCO, WHO, FAO, UNIDO, WIPO
Information activities	UNESCO	UNESCO, WIPO	UNESCO, WIPO
Regional and international linkages	UNDP, UNICEF, IFAD, UNFPA, UNESCO, UNIDO, FAO, WHO	UNICEF, UNFPA, IFAD, UNESCO, FAO, WHO, UNIDO	DESD, IFAD, UNICEF, UNFPA, UNESCO, WHO, FAO, UNIDO
Education and training of science and technology personnel	UNDP, UNICEF, UNFPA, IFAD, WIPO	UNESCO, WHO, ILO, FAO, UNIDO, WMO, WIPO	UNESCO, ILO, UNIDO, WHO, FAO, WIPO
Evaluating and acquiring technologies	UNDP, UNICEF, UNFPA	DESD, UNICEF, IFAD, UNFPA, WIPO	UNCTAD, UNICEF, UNFPA, UNIDO, FAO, WHO, WIPO
Maintenance of science and technology community	UNDP, UNESCO	UNESCO	UNESCO

Table 2 (continued)

Function	Financing	Technical assistance policy advice	Policy advice
Provision of technical services	UNDP, UNICEF, UNFPA	DESD, IFAD, UNIDO, UNESCO, WHO, FAO	IFAD, UNIDO, UNESCO, WHO, FAO
Protection of intellectual property	UNDP	WIPO, UNCTAD	WIPO

(ii) In most cases of institutional strengthening for which detailed evaluations have been carried out, it was demonstrated that the technology transferred to the institution being strengthened was not disseminated to users in the productive sectors. The absence of linkages among the three sectors (education, research and production) created more dependency on foreign know-how, in some cases promoted brain drain, and discouraged indigenous innovation. Where policies have encouraged linkages to the productive sector, the institutions have better prospect of becoming self-sustaining in the foreseeable future;

(iii) Recent evaluations indicate that the lack of adequate demand by enterprises for technology that has been developed locally is a serious problem. Government policies need to stimulate demand for such technology, something which has been absent in cases recently evaluated. Furthermore, because of limited competition, and owing to protection of the domestic market, innovation can be discouraged;

(iv) Assistance in the field of research and development, whether financial or technical, should be provided within the framework of a sectoral programme rather than on a project-by-project basis;

(v) Adequate sources of foreign exchange are needed to enable science and technology institutions to keep up with rapid technological changes in the world;

(c) With respect to United Nations operational activities:

(i) The United Nations system needs further to develop policies linking public and private sectors and the strengthening of enterprises. The system also needs to develop a policy with respect to the ownership of intellectual property rights developed during a United Nations-financed activity;

(ii) The level of inter-agency coordination in science and technology, particularly in the field, needs to be improved, and better coordination with the activities of other donor organizations sought;

(iii) There needs to be improvement in the availability of data on expenditures by United Nations organizations relating for science and technology in developing countries.

II. THE CONCEPT OF SCIENCE AND TECHNOLOGY CAPACITY AND THE FUNCTIONS OF UNITED NATIONS ORGANIZATIONS

7. The most widely accepted definition of what the United Nations system refers to as an "endogenous capacity in science and technology" comes from the work of the Advisory Committee on Science and Technology for Development (see A/CN.11/91, para. 13). According to the Advisory Committee, "an 'endogenous capacity' may be defined as the extent of local capability to exercise independent, informed judgment and actions regarding the generation, acquisition, and deployment of technologies for economic and social development".

8. Table 2 summarizes the principal functions in science and technology, or kinds of activities, which various United Nations organizations carry out in their relationships with developing countries. Not all organizations have mandates to carry out all of these functions; some are restricted to defined sectors; some are dependent on UNDP funding, while others have independent sources of support. However, it is the sum of all of the United Nations agencies, which are expected to make contributions to the science and technology capacities of developing countries.

9. It should be noted that elements of table 2 simply attempt to represent, in summary form, a large volume of literature; the agencies and organizations have not attempted to define, jointly, such activities and functions. An agreed listing would facilitate the task of assessing the extent to which the United Nations operational activities are contributing to the science and technology capacities of developing countries.

10. Table 2 attempts to juxtapose those functions which need to be executed within a national science and technology system, drawn from table 1, with the identity of those elements of the United Nations Operational System which are believed to give active support via the three principal routes set out in table 2, i.e., financing functions, capacity-building functions and global policy coordination. In table 2, the titles of organizations that act within a circumscribed sectoral domain are underlined. 1/

11. The key concept that table 3 is to highlight is the complexity of the effort by the United Nations system as it seeks to contribute to developing the science and technology capacities of developing countries. The United Nations system operates at many levels, in a wide range of sectors. Equally, it is important to recognize that in few, if any, developing countries will all of the organizations and entities listed be involved in carrying out all functions. To add a further degree of complexity, most of the entities involved have their own, separate governing bodies. This complex situation has led to rivalry and competition, despite the fact that there have been a variety of bodies, consultative groups and task forces established at different times to "coordinate" the activities of the system in the field of science and technology.

Table 3. Expenditures on research and development and on development assistance

Total research and development expenditures by all OECD member States in 1991	US$ 309 billion
Total research and development expenditures by the United States of America in 1991	US$ 157 billion
Official development assistance expenditures by all donors in 1991	US$ 53 billion
Research and development budgets of top 10 multinational corporations for 1991	US$ 32.6 billion
Total research and development expenditures of all third world countries	US$ 20 billion
Total expenditure on United Nations operating activities in 1989	US$ 6.6 billion
Total research and development budget of General Motors Corporation in 1991	US$ 5.3 billion
Total external support to all research and development in all developing countries in 1991	US$ 2.0 billion

Source: Data on OECD countries expenditures on research and development are from OECD STIID Data Bank, May 1991; those for OECD expenditures on ODA are from the Annual Report of its Development Assistance Committee for 1989; research and development budget data for transnational corporations are from the special edition of Business Week entitled "The Quality Imperative" published in December 1991; data on developing countries' expenditures and on external funding of developing countries' research and development expenditures are IDRC estimates.

III. FINANCIAL FLOWS TO RESEARCH AND DEVELOPMENT AND TO DEVELOPMENT

12. The significance of these data to the assessment of the contributions of the operational activities of the United Nations system to the enhancement of science and technology capacities of developing countries lies in the comparisons that they permit of the relative scale of efforts available through the United Nations system with the other activities having significant impacts on developing countries. The large disparities in the figures quoted underlie the basis of the accelerating gap in development that divides the industrialized from the developing countries.

13. It is of concern to note the low levels of external funding flowing to research and development in the developing countries. The figure of $2 billion presented in table 3 is only an estimate since most bilateral and multilateral organizations do not routinely maintain data sets recording their contributions to this key area of activity.

IV. ASSESSMENT OF TRANSFER OF TECHNOLOGY

14. For many years, the operational activities of the United Nations system have been deeply involved with transfer of technology to developing countries through:

(a) Policy studies, designed to provide an underpinning for policy development by developing countries; since the transfer of technology is an act of trade, UNCTAD has been very prominent;

(b) Providing a forum for North-South negotiations on transfer of technology;

(c) Financing and managing specific transfers as elements of individual technical cooperation projects.

15. While much attention is paid to the financial and legal terms and conditions under which technologies are transferred to developing countries, as for example in the negotiations at the United Nations Conference on Environment and Development, it is important that there be a better understanding of the process of technology transfer, if transfers are to contribute more effectively to the development of developing countries.

16. The extensive literature on science and technology policy has led to a series of conclusions about the way in which the success or failure of technology transfers is related to the science and technology capacity of the importing enterprise and country. In brief, the findings are that:

(a) Even when technologies are transferred from abroad, it is increasingly evident that domestic scientific and technological capacity is the most important factor determining the success or failure of effective transfer;

(b) The essential technological capacity that is required can be thought of as the skills, abilities and experience needed to select, use, adapt and create technology. Indicators of such a capacity would include the capability of a recipient institution to define its technological needs and to negotiate with suppliers, the ability to operate imported technology efficiently, the capacity to undertake routine repairs and maintenance, the ability to analyse the production facilities and to undertake modifications and additions to equipment to increase capacity and reduce costs, the ability to plan, design and execute expansions of capacity, and, finally, the ability to generate a series of technological innovations to improve production.

17. Within the large enterprises of the industrial world, most of these different skills are developed within the enterprise; in developing countries, where enterprises are, on average, much smaller, the range of expertise needed has to be supplied via linkages which have to be created between research and development institutions, usually in the public sector, and the enterprises, which are usually in the private sector.

18. United Nations organizations offering technical cooperation to developing countries have traditionally focused on some but not all of these functions; in fact, one of the comparative advantages attributed to the United Nations system has been its capacity to act on behalf of developing countries, in negotiating the purchase of foreign technology.

19. Experience shows that there is a need to complement the existing concern for research management (i.e., supply-side management) with management of technology in production (demand-side management). One has to understand the different backgrounds and behaviour patterns of generators and users of technology.

20. One promising approach, generated by the Business Council for Sustainable Development, an informal grouping of senior executives of transnational corporations created to produce a corporate contribution to the negotiations, at the United Nations Conference on Environment and Development, suggested that a three-step approach to technology transfer should be adopted in which:

(a) Technology transfers would be linked to long-term arrangements for business cooperation;

(b) Business cooperation would be linked to staff training in the recipient enterprise;

(c) Staff training would be linked to the promotion of innovation in the recipient enterprises.

It would seem useful to pursue these ideas and to see them implemented in practice.

21. Recent work in the industrialized countries has highlighted the importance of "networks of innovators", there being many different kinds of network arrangements, both formal and informal, now in frequent use by the enterprises of the industrialized world in order to enhance their own innovative, and hence competitive, performance. The main forms of relationship are set out in table 4, drawn from a recent paper in research policy by Christopher Freeman of the Science Policy Research Unit at the University of Sussex, United Kingdom.

Table 4. Types of relationships

(1) Joint ventures and research corporations

(2) Joint research and development agreements

(3) Technology exchange agreements

(4) Direct investment (via minority holdings) motivated by technology factors

(5) Licensing and second-sourcing agreements

(6) Sub-contracting, production-sharing and supplier networks

(7) Research associations

(8) Government-sponsored joint research programmes

(9) Computerised data banks and value-added networks for technical and scientific exchange, including patent information

(10) Other networks, including informal networks

22. One important policy challenge for developing countries will be to find creative ways to permit the participation of their enterprises and research institutions in appropriate networks, including those already devised by either enterprises or governments in the industrialized world, while at the same time not compromising the goals of their domestic policies. Such an approach will be dependent on the capacity to articulate policy goals clearly and to set priorities among conflicting goals.

23. One salient feature of today's more internationalized world is the growing tendency for enterprises to lose their sense of national identity as reflected in their ownership, corporate culture or lack of political allegiances. The pattern of technological development favoured by multinational firms has long been a subject of policy concern. Recent studies tend to suggest that multinational enterprises see the establishment of technical facilities, including research and development laboratories, as an effective means of tapping into the scientific research activities of the host countries; this leads to the view that such enterprises utilize and, in time, strengthen existing science and technology capacities rather than play a leading role in creating them. The more complex the array of such subsidiaries created by a firm, the more extensive are its linkages to the global advance of science and technology. The policy question facing governments is which attitude they should take in the face of the acceleration of this pattern of behaviour.

24. A related and germane issue concerns the future role that the operational activities of the United Nations system can play in facilitating the participation of developing countries in such arrangements. The two policy-related bodies that clearly have an interest are UNCTAD and the Department of Economic and Social Development, which has incorporated the responsibilities of the former United Nations Centre on Transnational Corporations.

V. EVALUATION OF CAPACITY-BUILDING

25. In order to provide an assessment of the contributions of the operational activities of the United Nations system to the enhancement of the science and technology capacities of developing countries, it is necessary to see how the different organizations within the system seek to contribute to the different elements of a national science and technology system, as set out in table 1, within the constraints of their individual mandates and of the level of resources available to them. From a review of that table, it can be argued that substantive contributions can be made by United Nations organizations - at a global or general level - to only the first two elements, that is to policy-making and to the forecasting of technological trends. Contributions to all other elements need to be made in the context of specific countries or small groups of related countries, that is to say, contributions to the remaining elements of the list must be delivered in the field.

26. As a consequence, this assessment will be attempted in two parts; first there will be commentary on the contributions to policy thinking and to technological forecasting, and then there will be a review, to the limited extent that it is possible, of the contributions made in the field.

27. The main routes open to the United Nations system to contribute to policy thinking for science and technology and to technological forecasting have been through contributions to debate in forums such as the former Intergovernmental Committee on Science and Technology for Development, the Committee on Transfer of Technology of UNCTAD, and the regional commissions, and through formal publications of reports or journals.

The contribution of debate in intergovernmental forums

28. There have been few formal attempts to carry out structured assessments of the effectiveness of discussions on science and technology policy in intergovernmental fora in the United Nations system; however, the recent decisions of the General Assembly and of the eighth session of UNCTAD to reform in a substantial way the Intergovernmental Committee, together with its independent Advisory Committee on Science and Technology for Development (see General Assembly resolution 46/235), and to disband the Committee on Technology Transfer represent significant indicators of the widely shared belief that reform is necessary.

29. No evidence is available to demonstrate that any of the deliberative organs were consistently influential in setting the course of science and technology policy thinking in any developing country. It should be noted that, for intergovernmental forums to be influential on policy development in Member States, much of the burden of bringing about this effectiveness lies on the Member States themselves, rather than solely resting on the secretariat involved. This conclusion is substantiated in the "Evaluation of UNESCO's Regional Ministerial Conferences on the Application of Science and Technology to Development" carried out for UNESCO in 1986.

The contributions of formal publications

30. Many United Nations organizations publish science and technology policy studies on a regular basis, with the most widely read being those from UNCTAD, ILO, the regional commissions, UNESCO and UNIDO. Unfortunately, given the difficulties of information dissemination in the developing world, much of the readership is possibly located in the institutions of the industrialized world.

31. Even the circulation of documents among the institutions of the United Nations system is not undertaken on any systematic basis.

32. One publication - the ATAS Bulletin - sought to deal with technological forecasts and the assessment of the implications of technological trends for developing countries. The series was published by the former Centre for Science and Technology for Development and was financed on an issue-by-issue basis by various interested donors. This publication was unique in what it attempted, but there have been no resources available to assess the extent to which it reached - or was used by - its intended audience in developing countries. This was one series of documents whose contents were subject to peer review.

33. Many publications of the organizations mentioned above have dealt with what are usually thought of as the "new" technologies, namely bio-technology, microelectronics, advanced materials and lasers, with bio-technology in particular receiving extensive attention. It would be worthwhile to survey science and technology institutions in developing countries to assess the extent of their access to this literature.

Contributions at country level

34. Even though no data exists to quantify the contributions of the United Nations operational activities in their efforts to enhance the science and technology capacities of developing countries, it is evident that annual expenditures must be in the order of millions of dollars, given the total operational expenditures, and that most are field expenditures, since the cumulative cost of policy studies will only constitute a modest (but again, unknown) share of the expenditures involved. The lack of data prevents any analysis of how resources are allocated among the different elements of a national science and technology capacity as described in table 1.

Comprehensive assessments at the country level

35. Few comprehensive evaluations have been carried out to assess the contributions made by United Nations organizations to capacity-building for science and technology in developing countries. An incomplete series of pilot studies, managed by the former Centre for Science and Technology for Development, has been attempting to develop methodologies which would be relevant to this task, as an element of a larger activity designed to promote national dialogues among the interested parties concerning "policies, programmes and projects which together could impart momentum to mobilising science and technology ... in pursuit of accelerated economic growth". 2/

36. This series of activities was agreed to by the ACC Task Force on science and technology and includes a specific attempt to assess the impact of United Nations system activities in science and technology within the participating countries. These exercises have been completed in only three countries - Thailand (1988), Jordan (1989) and Nepal (1989); studies are still in their early stages in Cape Verde, Jamaica, Pakistan, Togo, Uganda, the United Republic of Tanzania and Viet Nam.

37. One of the useful features of these exercises has been the use of national teams to conduct much of the data-gathering, data-analysis and provision of assessments from a national perspective; however, the cumulative value of these studies would be enhanced if some prior agreement were reached on a set of data tables that would be common elements of all such reports. In the three cases completed to date, the data sets collected are different in each case, diminishing the possibility of identifying common trends.

38. An essential prerequisite for an effective United Nations contribution to local capacity-building is the existence of a carefully considered national policy for science and technology; where such does not exist, there is no framework within which the United Nations can optimize its contribution.

39. While past contributions have been well received, there is still ample room for improvement in the performance of the United Nations system within individual countries. Among the deficiencies which are believed to occur with some frequency are:

(a) Variable experience, from country to country, with respect to the efficacy of coordination, in the field, of the different United Nations organizations working in a given country;

(b) The uneven quality of United Nations experts. An improved selection and performance evaluation process may be needed;

(c) Problems of timeliness in the supply of equipment and services;

(d) Insufficiency of the component of training to enhance local skills;

(e) Absence of a system for modernization before and maintenance of equipment after project termination;

(f) Insufficient effort placed on relations with other donors in a given country.

Thematic assessments

40. With the reported increasing interest within the United Nations system in evaluations, there have begun to appear a small number of "thematic" assessments which are of relevance to the present study. Two are of particular relevance since they focus on institutional development initiatives (which have been prominent elements of United Nations technical cooperation to many countries) and on the outputs of these institutions and their contributions to development. These documents are "Utilisation and Commercialisation of United Nations System-funded R&D Results: Case studies on the Indian Experience" (UNCTAD/ITP/TEC/20, October 1991); and "Thematic review of High Technology Assistance in India and China" prepared for the UNDP Central Evaluation Office, by the International Science and Technology Institute, Inc. May 1991.

41. The conclusions of these two independent evaluations are markedly similar although there is no indication that there was any link between the two:

(a) Most UNDP projects succeeded in establishing and/or strengthening the institutions reviewed;

(b) In most cases the technology was not disseminated to users in the productive sectors. The absence of linkages among the three sectors (education, research and production) created more dependency on foreign know-how; in some cases it promoted brain drain and discouraged indigenous innovation. Where policies have changed to eliminate public funding of research and development institutions, the creation of linkages to the productive sector has been encouraged. Where no such policy has been pursued, the institutions do not have any prospect of becoming self-sustaining in the foreseeable future;

(c) The lack of real demand by enterprises for technology that has been developed locally is a serious problem. Current government policies in the countries studied do not stimulate demand for such technology. Furthermore, because of limited competition and due to protection of the domestic market, innovation is discouraged;

(d) Assistance in the field of research and development, whether financial or technical, should be provided within the framework of a sectoral programme rather than on a project-by-project basis;

(e) It is unlikely that the institutions will be able to keep up with the rapid technological changes in the world if adequate supplies of foreign exchange are not made available to them.

42. Both studies emphasized the crucial role of linkages between research and development institutions and the productive enterprises that they were designed to serve. The UNCTAD study recommended that the objective of the United Nations technical cooperation programme could be changed fruitfully from "technological excellence" to "technological relevance", as that would shift the necessary emphasis towards commercialization and utilization of project results. The strengthening of institutions should be recognized as a means of pursuing development, not as an end in itself.

43. To put these findings in some perspective, it is only in recent years that the donor community, whether multilateral or bilateral, has recognized the degree to which linkages between research and development institutions and the productive sector were as tenuous as they have proven to be.

44. One special domain of policy analysis related to the development and use of science and technology, still too often neglected, is the analysis of the effects of technological change on women. It can be argued that many projects, including projects financed by the United Nations system, which deal either with institution building or with industrial development, fail to appreciate that there are special questions related to the needs of women which are relevant to such projects. Where projects are not sufficiently in touch with the populations who are expected to be beneficiaries, then the differing roles of the sexes are ignored.

A problem of measurement

45. Evaluation is greatly facilitated when, during project design, a series of indicators of success are selected and the means of quantifying those indicators put in place. This said, it must be acknowledged that there has been little success to date in the process of developing quantitative indicators of the impact of science and technology on development. An extensive discussion of this issue is to be found in the report of the ad hoc panel of specialists on the measurement of the impact of science and technology on development objectives (A/CN.11/AC.1/V/2) submitted to the Advisory Committee on Science and Technology for Development. A further review of the status of "impact indicators" would be useful.

VI. SOME OPERATIONAL ISSUES THAT REQUIRE ATTENTION

46. Traditionally, development assistance agencies, including particularly those of the United Nations system, have dealt primarily with governments and public sector institutions in developing countries; more recently there has been expanding support directed towards non-governmental organizations. With the growing move in many developing countries towards recognition of an important role for the enterprises, all development agencies will have to face

the policy question of the appropriate nature of the relationships into which they might enter when they are faced with the opportunity to contribute to a country's development by strengthening the capacity of private sector or other enterprises.

47. Examples of where such a policy issue might arise at an early date include the programmes of UNICEF in the area of vaccine production and of UNFPA in the production of contraceptives. Both agencies are actively involved in promoting local manufacture using technology that has been developed with the agencies' support. To date, the recipient enterprises have all been public, but this may not always be the most effective or efficient choice. It should be considered how best to involve private research and development units and enterprises in connection with United Nations system operational activities and to seek the participation of the private sector in the design and implementation of future United Nations system assisted research and development institution building projects, particularly those which will require foreign collaboration for a country to integrate technology.

48. When faced with the prospect of working with a private enterprise, the question is often raised as to the appropriateness of the use of official development assistance to generate private profit. One possible way to avoid this potential conflict of objectives would be to provide any financing in the form of loans at an appropriate interest rate; another route worth exploring is the recapture of the funds provided via some royalty-payment scheme coupled to a mechanism to recycle the royalty revenues back to some agreed upon developmental purpose in the developing country involved. The latter scheme has already been tried in practice; one small research-financing bilateral agency has twice created foundations in developing countries that receive royalties from private enterprises whose research has been supported, with the foundations being jointly managed by the agency and a representative institution of the developing country involved.

Ownership rights to intellectual property

49. The question of ownership of intellectual property rights has already arisen in United Nations-supported activities in public-sector research and development institutions, and is certain to arise if the United Nations system becomes more significantly involved in supporting the activities in science and technology of private enterprises in developing countries. According to published reports, the present situation is in need of clarification. Experience has demonstrated via case studies, including the UNCTAD report (UNCTAD/ITP/TEC/20), that commercial opportunities have been lost because of the lack of clarity concerning that question.

50. The continuing absence of a workable policy on intellectual property should be reviewed. UNDP, in cooperation with WIPO, should move rapidly to develop a policy with respect to the ownership of intellectual property developed in United Nations-financed projects.

Coordination within the United Nations system

51. In any discussion of the assessment of the contributions of the operational activities of the United Nations system to the enhancement of the science and technology capacities of developing countries, there quickly arises the question of coordination of the efforts of the various United Nations bodies involved, and any review of the activities of the system in the years following the 1979 United Nations Conference on Science and Technology for Development will show that a variety of efforts have been made to bring about improved coherence among the activities of the operational activities of the United Nations.

52. Among these efforts at the system-wide level have been the following:

(a) The prescription of a coordinating role for the United Nations Centre for Science and Technology for Development within the Vienna Programme of Action (as adopted at the 1979 Conference) and subsequent decisions to that effect of the Intergovernmental Committee on Science and Technology for Development;

(b) The attempt by the ACC Task Force to reach a consensus among agencies on the meaning of "an endogenous capacity for science and technology". Although that Task Force completed its work, it was ineffectual and has had no visible effect on the programming of the various agencies, all of which see their particular mandate as overriding any system-wide consensus;

(c) The creation of the Joint Consultative Group on Policy, which involves the five financing organizations within the system; while this group was not established with a view to its playing a particular role in science and technology as such, it is in a position to provide support to coordination by virtue of the responsibility by its members of the funding of technical cooperation activities.

53. At the regional level, findings include the following:

(a) Some developing countries believe that the regional commissions could provide useful forums for discussions and coordinated action on science and technology problems, given the perception in several regions that "regional" discussions are more likely to reflect the specific nature of their region's national problems than are "global" discussions. In addition, some regional commissions enjoy a high reputation for the quality of their analytical work on science and technology issues and this has allowed them to exercise an influence on policy thinking; the Economic Commission for Latin America and the Caribbean is the leading example;

(b) The regional commissions and the specialized agencies both exercise coordination among countries in specific projects.

54. At the country level:

(a) In accordance with other sections of this report, improved functioning of the resident coordinator system would be of great help to improved performance in science and technology;

(b) In recent years, pursuing a mandate granted by the ACC Task Force on Science and Technology, the former Centre for Science and Technology for Development has been experimenting with a methodology of extensive in-country consultations as a means of assisting developing country governments and the relevant United Nations organizations to reach a consensus on the specific actions needed for "endogenous capacity-building" in that country. This limited effort has been completed in the case of only three developing countries, while the experiment has been started in seven others. With some tightening of the methodology used in the initial assessment, which are carried out by each country itself, this approach seems to be practical and could be expanded to include the participation of bilateral donors;

(c) It is important to note that coordination of activities is a much more practical question at the country level, where the operational activities of the United Nations system are called upon to contribute to a specific national agenda.

Information management

55. The goal of "coordination" within a system such as the United Nations is that of concerted action towards shared objectives by the autonomous agencies that constitute the system. For such coordination to work in practice, a high level of common understanding is needed among participants of the activities of the others, and this can only be achieved by good management of the information resources of the system as a whole. It should be noted, however, that when the difficulties of ensuring coordination of the activities of the member agencies of the United Nations system are discussed, some say that the rivalry and competition exhibited by different agencies can be a positive force, leading to greater efficiency in resource use. This argument is often made by analogy to the way in which many large corporations are managed, with different elements of the corporation engaging in competition with each other.

56. Some of the innovative work in conceptualizing new ways of dealing with information sprang from the work of a United States Commission of Federal Paperwork "Information Resources Management Report", Washington, September 1977) and led to the concept of "mapping the information resources" within an organization as a first step in developing an information strategy (C. F. Burk Jr. and F. W. Horton Jr., "InfoMap: A complete guide to discovering Corporate Information Resources", Prentice Hall, Englewood Cliffs, New Jersey, 1988). According to the results of an informal, unpublished study carried out by the Centre for Science and Technology for Development, within the United Nations system information is poorly managed; it found that 300 or so data banks and information systems within the United Nations could be characterized as unused, supply rather than demand driven, not user-friendly, having insufficient resources to maintain them, being in many cases incompatible with each other in format and software.

Notes

1/ A short summary of the relevant activities of the principal agencies of interest to the present report is found in document A/C.11/1991/5, submitted to the Intergovernmental Committee on Science and Technology for Development at its 1991 session.

2/ "Policy guidelines among the stakeholders in the development process", an internal paper produced by the former Centre for Science and Technology for Development of the Secretariat.